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Letter to the Editor

Unmasking Fibromyalgia as A Mitochondrial Disorder Requires Search for More Than A Single Variant or Single Mtdna Deletions

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With interest we read the article by Danda *et al.*, about 30 females with fibromyalgia syndrome (FMS) who were tested for the presence of the mtDNA variant m.3243A>G and for single mtDNA deletions (Danda, S. *et al.*, 2019). Neither the m.3243A>G variant nor a single mtDNA deletion was detected in any of the 30 females (Danda, S. *et al.*, 2019). We have the following comments and concerns.

The main shortcoming of the study is that FMS patients were tested only for a single mtDNA point mutation and for single mtDNA deletions. Since the mtDNA carries 37 different genes and since the nDNA carries about 1500 genes involved in mitochondrial metabolism or function, it is conceivable that the 30 included patients carried mutations other the two for which they were investigated.

Another shortcoming is that the 30 FMS patients were not tested for hyper-CKemia and that they did not undergo the lactate stress tests (Finsterer, J., & Milvay, E. 2002). Since many mitochondrial disorders (MIDs) manifest with mitochondrial myopathy, it is quite likely that creatine-kinase (CK) was elevated. Since all patients presented with fatigue and exercise intolerance, it is conceivable that they reacted with lactate elevation under standardised work-load below the anaerobic threshold (Finsterer, J., & Milvay, E. 2002). Unfortunately, CK values were not presented and lactate was measured only at rest.

Chronic fatigue and myalgias may also occur in patients with a beta-oxidation defect (Pennisi, E.M. *et al.*, 2018). Thus, FMS patients should not only be investigated for MIDs but also for lipid storage disease. Work-up for lipid storage disease should include muscle biopsy why we should be informed about the muscle biopsy findings in the 30 presented patients.

Since fatigue and myalgias may also occur in lysosomal storage disease, it is crucial that these types of differential diagnoses are excluded as well. Thus, it is essential that lysosmal disorders are ruled out in all FMS patients as well.

MIDs are frequently multisystem disorders (Nesti, C. *et al.*, 2019), why it is crucial that FMS patients are prospectively investigated for affection of organs or tissue other than the muscle. Organs frequently in MIDs include the brain, the eyes, ears, endocrine system, myocardium, gastrointestinal tract, the kidney, and the bone marrow. Since involvement of the brain and the myocardium has the strongest impact on the prognosis and outcome of a MID, we should be particularly informed about the results of cerebral and cardiologic investigations.

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Missing in this study is also the family history. Since mtDNA single point mutations and single mtDNA deletions are transmitted via a maternal trait of inheritance in 75% respectively 4% of the cases (Poulton, J. *et al.*, 2017), it is crucial to know if any of the first-degree relatives presented with a phenotype suggestive of a MID.

Overall, this interesting study could be more meaningful if heteroplasmy rates were provided, if variants in genes other than the ones reported were also investigated, if an extensive family history was provided, if the multiorgan nature of MIDs was addressed, and if muscle biopsy was carried out in all 30 patients.

REFERENCES

1. Danda, S., Thomas, B. M., Paramasivam, G., Thomas, R., Mathew, J., & Danda, D. (2019). A descriptive pilot study of mitochondrial mutations & clinical phenotype in fibromyalgia syndrome. *The Indian journal of medical research*, *149*(1), 47.
2. Finsterer, J., & Milvay, E. (2002). Lactate stress testing in 155 patients with mitochondriopathy. *Canadian journal of neurological sciences*, *29*(1), 49-53.
3. Nesti, C., Rubegni, A., Tolomeo, D., Baldacci, J., Cassandrini, D., D'Amore, F., & Santorelli, F. M. (2019). Complex multisystem phenotype associated with the mitochondrial DNA m. 5522G> A mutation. *Neurological Sciences*, *40*(8), 1705-1708.
4. Pennisi, E.M., Garibaldi, M., & Antonini, G. (2018). Lipid Myopathies. *J Clin Med, 7. pii: E472. doi: 10.3390/jcm7120472.*
5. Poulton, J., Finsterer, J., & Yu-Wai-Man, P. (2017). Genetic counselling for maternally inherited mitochondrial disorders. *Molecular diagnosis & therapy*, *21*(4), 419-429.